

REMARKS

Claims 1-12 and 14-18 are pending.

Claims 1-12 and 14-18 are rejected.

35 USC 102(b)

Claims 1-7 10 and 18 are rejected under 35 USC 102(b) over US 4,343,900

The Examiner alleges in the response to applicants arguments that Watanabe teaches polymerization of the acrylamide solution in the presence of cellular material due to leaking of cellular material from cells, as described in comparative example 1 (col. 5, lines 40-53).

However, swelling of fixed cells, i.e. leaking of cell material from cells, is prevented when the reaction is carried out in an isotonic medium comprising a physiological saline solution, a phosphate buffer solution, etc. (col. 2, lines 18-24).

The comparative example 1 is carried out using a phosphate buffer solution to wash the fixed cells and to dissolve the acrylonitrile. Thus it is likely that there is no leakage in this particular example.

The same phosphate buffer solution is used in comparative example 5 where swelling of the fixed cells also does not happen (cf. table 1).

Large amounts of phosphoric acid salts causes polyacrylamide of low quality (cf. col. 1, lines 43-53).

The applicants point out that the components of the phosphate buffer solution as well as the resulting phosphoric acid salts are not components of the fermentation broth used for culturing the microorganism.

In contrast, comparative example 3 is carried out in pure water, where swelling of the fixed cells apparently occurs (cf. table 1).

In order for there to be anticipation, polymerization must occur in the presence of cellular material and/or components of a fermentation broth.

Watanabe teaches in col. 2, lines 5-25:

Furthermore, it is also believed to be due to the facts that the enzyme is **liable** to leak out of the cell due to swelling and that the stable conformation in normal cells in which the enzyme is not swollen cannot be maintained.

A novelty rejection cannot be based on **possibilities or probabilities**. Therefore, Watanabe does not rise to the level of anticipation.

Because something may happen does not mean it necessarily occurs. For there to be anticipation, the leakage of cells must necessarily happen. This is not the case.

Furthermore, other passages referred to by the examiner are passages that describe fixed cells on a polyacrylamide gel. How the monomer (acrylamide) is obtained, is not defined. Hence, the polymerization in the presence of resting cells cannot be regarded as an anticipating reference.

35 USC 102(b)/ 103(a)

Claims 1-11, 14-16 and 18 are rejected under 35 USC 102(b) as anticipated by or, in the alternative, under 35 USC 103(a) as obvious over Yamada, US 5,334,519, when taken in view of Seki, US 5,352,828.

Yamada et al. (US 5,334,519) relates to the biological production of an amide from a nitrile by the action of a nitrile hydratase which is obtained by culturing a microorganism of *R. rhodochrous* J-1, in the presence of a cobalt ion. All examples disclose a procedure wherein the amides are purified by recrystallization after removal of cellular material resulting in a pure acrylamide. Therefore, Yamada as well as any combination with Yamada teach away from the invention on hand (the polymerization of the monomer in the presence of cellular material).

Seki et al. (US 5,352,828) relates to a process for stabilizing an aqueous acrylamide solution under iron surface-contacting condition because acrylamide is apt to polymerization on contact with an iron surface (cf. col. 1, lines 45-48; col. 2, lines 22-28). Specifically, the examples show that when a high purity aqueous acrylamide solution (after separation of biological catalyst) is maintained at 50°C in the presence of an iron piece without adding a stabilizing agent, a polymer starts to form on the surface of the iron piece after about 3 hours of heating (cf. col. 4, lines 47-48; col. 5, lines 14-19). Furthermore,

Seki teaches the stabilization of an aqueous acrylamide solution using water-soluble monocarboxylic acid salts.

With reference to Example 4 of Yamada, the reaction is carried out at 25 °C for several hours., Additionally, Yamada mentions that the presence of iron ions has an adverse affect on the nitrile hydratase activity of J-1 strain (col. 9, lines 26-32) and teaches the avoidance of iron or iron contact in the his process. It must therefore be assumed that no polymerization occurs during the preparation and purification step.

Thus, the Examiner fails to make his case that polymerization of an aqueous amide solution occurs without a stabilizing agent, i.e. is inherent. Also, polymerization would not occur during routine optimization and experimentation because Yamada teaches that iron contact should be avoided.

In summary, Yamada teaches recrystallization of acrylamide and removal of acrylamide from cell material. While acrylamide might polymerize (which is unlikely because of the avoidance of iron contact), this polymerization would only occur in the absence of cellular material or components of the fermentation broth. Secondly, as Yamada teaches avoidance of iron, polymerization caused by iron will not happen.

Hence, Yamada in view of Seki does not anticipate or make obvious the claims of the present invention.

Claims 1-12 and 14-18 are rejected under 35 USC 103(a) as obvious over Yamada, US 5,334,519 in view of Seki, US 5,352,828 and Leonova, Biotechnology, 1000, 88:231-241.

Leonova is provided to suggest the use of the microbial species *Rhodococcus rhodochrous*. The examiner alleges that the selection of a strain of a known organism for use in a known method would have been a matter of routine experimentation.

As discussed above, the claimed process is novel and unobvious. Yamada discloses a procedure wherein the amides are purified by recrystallization after removal of cellular material resulting in a pure acrylamide. There is no inherent polymerization of monomer formed in Yamada for the reasons expressed above.

Leonova does not make up for these deficiencies.

Reconsideration and withdrawal of the rejection of claims 1-12 and 14-18 is respectfully solicited in light of the remarks *supra*.

Since there are no other grounds of objection or rejection, passage of this application to issue with claims 1-12 and 14-18 is earnestly solicited.

Applicants submit that the present application is in condition for allowance. In the event that minor amendments will further prosecution, Applicants request that the examiner contact the undersigned representative.

Respectfully submitted,



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